TLA QUARTERLY
July 2005

President's Letter

Greetings everyone. I hope your summer is off to a good start and that all is well. Your Three Lakes Association board has been hard at work, meeting each second Tuesday of the month. It is hard for me to believe that this is the end of my two-year term as president and that this is the last president's letter you will receive from me. The ride has been an eventful one and many exciting and meaningful things have occurred. The TLA board is full of talented and dedicated people who have functioned well as a team as we strive to fulfill our mission to provide leadership to preserve, protect and improve the environmental quality of the Chain of Lakes watershed for all generations.

Please try to attend (and bring a guest) our annual association meeting July 20th, 5:00 P.M., at Hannert's farm on Stover Road. Officers and board members will be elected and a short summary of our year's business will be presented. A pig roast followed by live music and square dancing is planned. The event promises to be lively and very fun. I look forward to seeing all of you there.

Dick Garcia

Three Lakes Association Awarded A Second Water Quality Grant

In addition to last year's $62,000 grant for the Torch Lake water quality model, the Michigan Department of Environmental Quality has awarded Three Lakes Association $80,000 from the Clean Michigan Initiative Fund to build a predictive water quality model for Lake Bellaire and Clam Lake. This grant, plus $47,000 in local matching funds and thousands of volunteer hours, will result in a decision-making tool to help township officials protect water quality while they encourage economic growth.

"We are very excited and proud to have been selected to receive this grant award," said Dick Garcia. "We are working with a unique network of partners to accomplish our goal of clean water and a healthy local economy. Our partners include the eight townships surrounding Torch Lake, Clam Lake, and Lake Bellaire; the Great Lakes Environmental Center of Traverse City, the Grand Traverse Bay Watershed Council, Northwest Michigan College-Water Studies Institute, the Antrim Conservation District, Central Michigan University, Torch Lake Protection Alliance, and students from Central Lake, Bellaire, Elk Rapids High Schools, and the University of Notre Dame who will be participating in the Three Lakes Summer Internship Program."

"A water quality model is a computer simulation program that combines actual field measurements with the capability to answer 'What if…' questions," said Bob Kollin, TLA Water Quality Model Program Co-Manager. "For example, as the Village of Bellaire continues to grow, this model will be expected to answer questions about potential impact on water quality due to changes in phosphorus released from the

wastewater treatment facility due to more pressure on the sewage lagoons.' By answering such questions the Model can help manage the economic growth of Bellaire while ensuring protection of the environment.

When asked what's involved in building a predictive water quality model, Corey Arsnoe, Antrim Conservation District technician and TLA Water Quality Model Program Co-Manager replied, "For the next 18 months, our team of volunteers will measure river and stream flows, gather water quality data on a monthly basis. They will collect hundreds of water samples from Lake Bellaire, Clam Lake, their major tributaries, and groundwater entering the lakes. These samples will be analyzed by the Great Lakes environmental Center of Traverse City to establish how much phosphorus enters and leaves the lakes. The project will be completed by December 2006 when TLA and the Water Studies Institute will host a second hands-on training workshop for those interested in becoming familiar with the model. Invitees will include county and township and village officials, watershed organizations, other lake associations, engineering firms, developers, and the general public.

"I was very pleased to see the Three Lakes Association receive this grant. This project represents a wonderful collaborative effort to establish a predictive water quality model for the Elk River Chain of Lakes watershed," commented State Representative, Kevin Elsenheimer, 105th District, and Bellaire resident. "The Chain-of-Lakes is one of northern Michigan's greatest jewels and it is wonderful to see the efforts of the community rewarded. Economic growth is vital to Antrim County and this Water Quality Model will combine environmental protection with a healthy economy," he added.

"The DEQ is particularly interested in this modeling project because the Elk River Chain of Lakes Watershed supplies 60% of the water flowing into the Grand Traverse Bay," said Gary Kohlhepp, M-DEQ Water Division Staff Specialist. "It is our hope that when we know how this watershed works and how to protect it's clean water, the approach used by Three Lakes Association can be used by other environmental organizations in other watersheds."

" A predictive water quality model is a tool for county and township officials that takes some of the guesswork out of issues surrounding economic development by combining the critical elements of environmental protection with economic growth," said Tim Hannert. "It gives us the rare opportunity to be ahead of water pollution issues before they result in a decline in water quality, while at the same time, it can be used to strengthen Antrim County's economic base," he added.

"It is important to realize that both grants only fund sample analyses and model engineering performed by Great Lakes Environmental Center in Traverse City. Three Lakes officers and the executive director receive no compensation for time spent on these projects from the DEQ grants," Norton Bretz, TLA treasurer, emphasized. "We still need members to keep up to date with their dues renewals so we can continue to pay our bills.

For more information about this project, or if you wish to volunteer some time to help out, please contact Tim Hannert at 231-533-4852.

Torch Lake Research Continues

(Photo Identification (l to r) Baykeeper's Tugboat deploying sediment traps; with Doug Endicott, Bob Anderson, Phil von Voightlander, Norton Bretz)

On May 26th, the TLA Water Quality team, with the help of our partner the Grand Traverse Bay Watershed Center and the Baykeeper's Tugboat, recovered the sediment traps that were deployed in Torch Lake last October. The traps arrived at the surface, intact but covered in a chalky slime, after 8 months underwater. Notably the traps had no Zebra mussels attached. The sediment collected will be analyzed for phosphorus in an attempt to measure the quantity of this nutrient attached to flakes of calcium carbonate as they both fall to the bottom of the lake. This amazing process is perhaps the single most important pathway in Torch Lake for phosphorus to be removed from the water column. The chemistry of this process is influenced by pH, temperature, and pressure but only partially understood at this time. Stay tuned for more 'Secrets of Torch'.

Groundwater Project

This summer Three Lakes Association is collecting unique information about Torch Lake. We are beginning to understand the groundwater input and its phosphorus contribution to the lake. So far we have driven 15 shallow wells at 12 different sites around Torch. Many TLA members have given us permission to use the ground just beyond their beaches for this project. We hammer down a miniature well point and screen between 2 and 10 feet below the lake bottom in about 2 feet of water. These points are connected to the surface by a small plastic tube from which we extract our samples and measurements. TLA volunteers and student interns will be taking well samples through the summer, and we will remove them in the fall – leaving not even footprints. There are only a few other lake studies in the country that have incorporated this type of measurement into a comprehensive survey. However, if you think about it, much of the run off from farms, lawns, septic systems and other human activities get into the lake by this route. Our initial estimates are that the amount of phosphorus coming from this source is similar to that coming in from Clam River that drains a 300 square mile watershed. By the end of the summer we will know for sure. And to those of you who are our lake hosts for this work, a special thank you from all of us.

Dave Forton, of TV 7and 4, Interviews Water Quality Team
(Photo: Dave Forton with videocam, interviewing TLA WQ team)

Dave Forton of TV 7 and 4 interviewed the Water Quality Team and taped the May 26th sediment trap event. Dean Branson, Tim Hannert, and summer intern Jessica Arnold contributed their thoughts on the project for the evening news. We have a copy of the news segment at the office. Call 231-533-4852 if you would like to borrow it.

Summer Intern Program
(Photo ID (l to r) Corey Arsnoe, Samantha Fox, Jessica Arnold, Mike Nelson, Emily Lowery, Norton Bretz, Bob Kollin, preparing for Clam River flow measurements.)

For the third consecutive year Three Lakes is hosting a large group of summer interns. We have three interns from Elk Rapids High School (Derek Walton, Lauren Elbert, and Samantha Fox), one from Bellaire High School (Emily Lowery), one from Central Lake High School (Jessica Arnold), and one student from the University of Notre Dame (Mike Nelson). They will all be working on various aspects of the Water Quality Modeling project under the direction of Dean Branson and Norton Bretz.

Some will specialize their summer activity by studying minor tributaries; some will be working on the groundwater sampling study, and some on other significant inputs of phosphorus to Torch. They meet each Thursday morning to work on their individualized projects. Our first Thursday was devoted to taking deep lake samples and measuring the important physical profiles of Torch with our automated Hydrolab instrument as we have been doing now for 12 consecutive months. Most recently we did a measurement of the total flow through Clam River and began working on Torch River. These measurements are all important for building a database of information for our predictive modeling of water quality. As last year, we are asking each student or pair of students to write a report of their summer work. This will give us an important record of our activities and provide an opportunity for these students to work with volunteers who have considerable experience with the TLA modeling project and with lake residents who have graciously let us use their lake and property for some of these measurements.

The existence and successful operation of the summer intern program depends upon the availability of adult chaperons. Each team of students must have two adults, preferably a male and a female, to accompany them at all times. If you can spare a few hours during your busy summer to help shepherd these fantastic students please call the TLA office at 231-533-4852. Your assistance will be gladly appreciated.

Cedar River Study

(Photo Identification: (l to r) Students collecting aquatic insects; Jesse Comben, Jocelyn Menestrina, Jim Cerica, Jack Folker)

A local environmentalist inspired Bellaire High School Biology 2 students and their teacher, Kim Clark, during a recent classroom presentation about the huge toxic TCE plume moving northwest from the old Wickes manufacturing site in Mancelona. Gary Knapp, a member of Antrim County United Through Ecology and Executive Director of the Community Resource Center had just told them that a portion of the TCE plume enters the Cedar River near Schuss Mountain.

The biology class asked a critical question, "What affects will the TCE have on living things in the Cedar River?" To answer that question they designed a testable hypothesis and performed experiments to either support or refute their hypothesis. Class member Jocelyn Menestrina described the hypothesis, "We expect that the TCE will decrease the variety of insects that live in the river."

Armed with sampling nets, buckets, sieves, hip boots, and an emergency change of clothes, the students collected immature insects from the bottom of the river at three locations. One sampling site was 3 miles above the TCE entry point; one at the entry point, and the last one was 3 miles downstream of the entry point. At each site, in addition to collecting the insects, water samples were also taken. "The Michigan Department of Environmental Quality has measured 30 parts per billion of TCE entering the Cedar at Schuss Mountain Road and Cedar River Drive," said Tim Hannert, volunteer science consultant for the research project. "The Environmental Protection Agency has determined that it takes a million times more TCE than 30 ppb to kill the insects we found," Hannert added.

After several hours of identifying and counting the various insects, diversity calculations were made and conclusions were drawn. "The Diversity Index calculations show that each sample site had about the same amount of variety and therefore our hypothesis was not supported", reported Jesse Comben. When asked what was the best part of this experience Jessie replied, "I loved working in the river, getting my hands wet, and doing real science. It sure beats the indoor classroom." When asked the same question, Kim Clark replied, "It's exciting to see our students learn by doing. Fieldwork should be a part of everyone's learning experience. I'm also gratified for the support provided by Three Lakes Association and the Friends of the Cedar River. We couldn't have done this experiment without the help of both organizations."

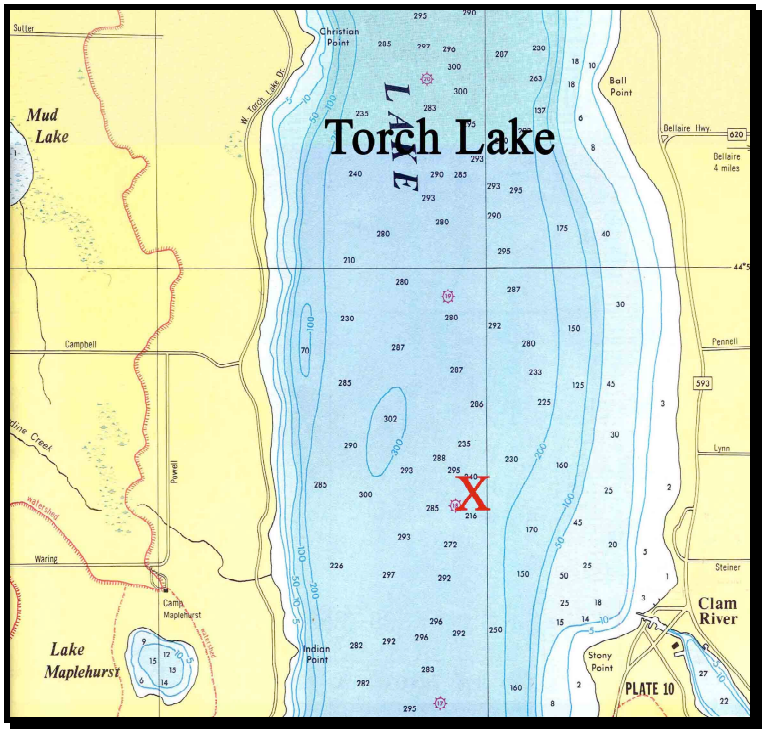
Three Lakes and Grass River Natural Area Golf Outing Report

The annual fund raising golf outing was held Saturday June 11. Eighty golfers enjoyed a beautiful afternoon of camaraderie and fun while supporting Grass River and Three Lakes. Each organization will realize between $5,000 and $6,000 to help support the Educational Coordinator position at GRNA. Many thanks to the organizing committee for all their hard work in putting this event together.

"Fishing For Answers"

The first joint TLA-GRNA-TLPA educational event of the summer was held on June 15th at the Torch Lake Township Park. Despite the rain earlier in the day eighty people attended. Pontoon boat passengers were regaled with fishing stories by local experts while cruising to visit various fishing sites near the township park. Wine and cheese were served to all while a fly-tying demonstration and aquatic insect identification exhibit informed and entertained everyone. Thanks to Melynda Bagley, Grass River Natural Area Educational Coordinator, and the organizing committee for an enjoyable and informative event.

Fisherman's Warning: Snagging Hazard



There is an underwater buoy at the GPS location N44^{o} 57'/W85 ^{o} 18' which is about a mile northwest of Clam River. This buoy is about 10' below the water surface and attached to an anchor with a steel cable. This cable carries a sediment trap for our water quality lake study. If you snag a trolling line on this, you won't get it back – be careful! This announcement has also been placed in local marinas and launch sites

Annual Meeting and Pig Roast: <u>Wednesday. July 20th</u>

This year's annual meeting should be good old fashion fun. We're planning a pig roast at Hannert's farm on Stover Road, just east of Bellaire. There will be a short business meeting at 5:00 preceding the dinner, and after dinner, a genuine barn dance. A caller will be on hand to teach us how to square and line dance. The menu is slow-roasted pork, baked beans, tossed salad, homemade applesauce, dessert and your choice of 2 beverages. We'll have beer, wine, ice tea and soda on hand. All this for only $20 per person, and you'll have the time of your life!!

Plan to get a group of friends together and join us for the fun. Members are encouraged to bring guests. This would be a great way to introduce your neighbors to TLA. The tables are designed for groups of 8.

Reservation forms have been mailed to each current member. Call the office at 231-533-4852 or Sally Hannert at 533-6550 for more information. We need paid reservations by July 10th.

August Educational Event: Wednesday August 17th

Location: Alden Depot, Alden, MI
Time: 4 – 6 pm

Mark your calendar now and plan to attend the final TLA/GRNA/TLPA educational event of the summer. The title is **"Unintended consequences—what can we learn from past to help us avoid problems in the future"** Come learn about the TCE Plume and the latest update on progress to clean it up. See a three dimensional model of the plume based on the latest sampling data. Hear about the predictive water quality model and listen to the summer interns who have been working on the project. Wine and cheese will be served. No reservations necessary.

Membership Drive:

We have close to 400 members as of June 30, 2005. Our goal for this year is to reach a total of 450. We need your help. Use the membership form in this newsletter to invite just one neighbor to join TLA. We mail this newsletter to over 500 people so if each one receiving the newsletter was able to … you see the possibilities. One of the most significant points to make when encouraging folks to join our organization is that Three Lakes has made a difference in the past and we will make a difference in the future. The best example of this capability is our water quality modeling effort supported by two consecutive DEQ grant awards and our eight neighboring townships. These projects should ensure high quality water in our lakes and streams. If you need more ammunition to help convince people to join TLA call Allan Hickman at 377-7354.

Note: Check the mailing label to see if your 2005 dues are paid. If the year is highlighted you should renew promptly. Thank you for your continuing support.

Cooperative Lakes Monitoring Program Report:

The following table is a summary of last year's data from our volunteer lake monitoring program. The numbers represent the Trophic Status Index for each test category. In 1977 Dr. Carlson pioneered the concept of a Trophic Status Index to estimate the water quality for a lake or pond. In each category a lower TSI value is better. The TSI averages in the last column indicate excellent water quality in our lakes. The Lake Bellaire TSI average was 42 in 2003 and appears to be improving with a reading of 33. The phosphorus TSI

numbers for Torch Lake, both north and south, seem too high. Based upon our modeling studies we have consistently measured extremely low phosphorus levels and have a great degree of confidence in the analyses provided by GLEC. Perhaps the CLMP samples were not adequately prepared, stored, or analyzed by the DEQ lab.

Lake	Clarity TSI	Chlorophyll TSI	Phosphorus TSI	Average TSI
Bellaire	**37**	**36**	**27**	**33**
Clam	**34**	**32**	**32**	**33**
Torch -North	**30**	**30**	**42**	**34**
Torch –South	**31**	**30**	**37**	**33**

Executive Director's Corner

I have been awed by two recent events. The first was my nomination for the Northern Michigan Environmental Action Council's 'Environmentalist of the Year' award by Ray Ludwa. Thank you for your support Ray. It is truly an honor to be recognized by one's peers. This honor is a reflection of the solid support I've received over the past three years from the TLA Board of Directors and the many volunteers who help us fulfill our mission. I thank you all. The second stunning event is the most recent DEQ grant award. TLA has become recognized as a water quality leader not only in our watershed but also on a statewide level. The DEQ is very interested in our innovations in groundwater measurement as they pertain to predictive water quality modeling. There is potential here for publishable scientific papers as well as opportunities for presentations at regional scientific conferences.

Each year approximately 20% of our members fail to renew their memberships. The reasons are many; people move away, the cottage is sold, some get ill and pass away, while others decide to put their resources elsewhere. To stay alive a non-profit organization like ours must replace these folks just to stay even. To grow, we need more than 20% new members each year. The struggle is continuous and requires our best efforts to gain additional support for the many projects we attempt. Sometimes seeking new members can be discouraging. When asked to join TLA, a neighbor of one of our board members refused because he felt joining TLA didn't matter. The implications are twofold.

The first is that TLA doesn't make a difference. Here are three things out of many we've done that have made a huge difference. One of our last summer's interns was accepted into the independent study program at the University of Michigan largely due to her experiences and recommendations from the TLA independent study program and it's leaders. The Michigan Department of Environmental Quality is very interested in our pioneering groundwater study for Torch Lake. The DEQ is not familiar with the techniques we've initiated and would very much like to see and use the final results. Last summer our water quality team helped to clean up about 5 leaky or failing septic systems around Torch Lake.

The second implication is that one doesn't need to participate as a member in TLA because all the good things we do will happen anyway. I suppose that person is right but how does he or she sleep at night knowing that benefits are accruing without sharing in the cost or the work?

I'll be working this summer along with nearly 100 volunteers who are convinced that TLA does matter and that we can make a difference. Won't you join us?

See you out on the water,

Tim Hannert